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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NILS MOHMEYER, OLIVER REESE, ANDREA EISENHARDT, MARCUS LEBERFINGER, and HEINRICH MOHMEYER

Appeal 2015-004915
Application 12/677,545
Technology Center 1700

Before KAREN M. HASTINGS, JAMES C. HOUSEL, and JULIA HEANEY, *Administrative Patent Judges*.

HEANEY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants[1] seek our review pursuant to 35 U.S.C. § 134(a) of a decision of the Examiner rejecting claims 1, 2, 4, 5, and 7–22 of Application 12/677,545. We have jurisdiction under 35 U.S.C. § 6(b). An oral hearing was held on April 18, 2017. We affirm.

BACKGROUND

The subject matter on appeal relates to a process for producing a top layer, such as for roads, by producing a mixture comprising mineral material

[1] Appellants identify the real party in interest as BASF SE. App. Br. 1.

and a polyurethane reaction mixture, applying it to a substrate material, and compacting and hardening it by applying a pressure of at least 5 N/cm^2.

Spec. 1. Claim 1, the sole independent claim on appeal, is illustrative of the subject matter:

> 1. A process for producing a top layer, the process comprising applying a top layer mixture to a substrate material, and compacting and hardening the top layer mixture by applying a pressure of at least 5 N/cm^2
>
> wherein:
>
> the top layer mixture comprises a mineral material and a polyurethane reaction mixture;
>
> the process is carried out in the absence of solvents;
>
> the polyurethane reaction mixture is obtained by mixing
>
> a) an isocyanate,
>
> b) a compound having at least two hydrogen atoms which is reactive toward isocyanate, and optionally
>
> c) at least one of a chain extender, a crosslinking agent, or both
>
> d) a catalyst, and
>
> e) at least one additive;
>
> the compound b), having at least two hydrogen atoms which is reactive toward isocyanate, comprises a hydroxy-functional compound comprising at least one hydrophobic group;
>
> the substrate material is a material employed in the construction of bituminous roads; the top layer is suitable for roads, tracks, and other areas used by traffic;
>
> neither the polyurethane reaction mixture nor the top layer mixture comprise a blowing agent; and
>
> a proportion of the polyurethane reaction mixture in the top layer is from 1 to 9% by weight, based on the total weight of the top layer mixture.

THE REJECTIONS

The Examiner maintains the following rejections on appeal:

1. Claims 1, 4, 5, 7, 9–13, 15–18, 21, and 22 under 35 U.S.C. § 103(a) as unpatentable over the combination of Petrovic[2] and Hartenburg;[3]
2. Claims 1, 2, 4, 5, 7–12, and 14–22 under 35 U.S.C. § 103(a) as unpatentable over the combination of Leitner[4] and Hartenburg; and
3. Claims 1, 2, 4, 5, and 7–22 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.[5]

DISCUSSION

Rejection 1

Appellants present argument directed to sole independent claim 1 and do not present argument for separate patentability of any dependent claims, except for claims 16–17. App. Br. 3. Therefore, we limit our discussion to claims 1 and 16; the dependent claims stand or fall with claim 1 or 16. 37 C.F.R. § 41.37(c)(1)(iv) (2012).

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[2] Petrovic et al., US 2003/0090016 A1, published May 15, 2003 ("Petrovic").
[3] Hartenburg, US 2007/0223998 A1, published Sept. 27, 2007 ("Hartenburg").
[4] Leitner et al., DE 102 41 293 A1, published Mar. 18, 2004 ("Leitner"). Citations herein are to the machine translation of Leitner relied upon by the Examiner in making the rejection.
[5] The Examiner designated this rejection as a new ground in the Answer. Ans. 8–9. Appellants responded in the Reply Brief pursuant to 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner finds that Petrovic teaches a method of pouring a polymer concrete road with soy-based polyurethane concrete comprising an aggregate composition and 10–20 wt% of polyurethane, which abuts the claimed range of 1–9 wt% polyurethane. Ans. 2, citing Petrovic ¶¶ 21, 22, 29. The Examiner acknowledges that Petrovic does not teach compacting the polyurethane/aggregate mixture by applying a pressure of at least 5 N/cm^2; the Examiner determines, however, that it would have been obvious to a person of ordinary skill in the art to use Hartenburg's compacting technique applying pressure of 10–50 N/cm^2 in Petrovic's production process, because it would have involved application of a known technique to a known method to yield a predictable result of intensive bonding of the layers. Ans. 3–4, citing Hartenburg ¶ 35.

Regarding claim 16, the Examiner determines that the combination of Petrovic and Hartenburg teaches the same composition produced by the same process as claimed, and therefore absent evidence to the contrary, a person of ordinary skill in the art would have a reasonable basis to expect that the composition of the Petrovic/Hartenburg combination would intrinsically have the same load-bearing properties (i.e., "suitable for construction classes V to I") as recited in claim 16. Ans. 4, citing *inter alia* *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977).

Appellants argue that "a highly compacted foam free structure having from 1 to 9% by weight of polyurethane is important to the present invention" but based on Petrovic's teaching, a person of ordinary skill in the art would not have attempted to use less than 15 wt% polyurethane resin to produce a top layer suitable for roads and tracks. App. Br. 4–5, citing Spec.

p. 10, ll. 28–34; Mohmeyer Decl.[6] ¶ 8. Specifically, Appellants argue that Petrovic does not contemplate a highly compacted polymer concrete containing less than 10 wt% polyurethane resin, explicitly discourages the use of less than 15 wt% polyurethane due to coating issues, and teaches that at least 15 wt% polyurethane is necessary for high load applications. App. Br. 4–5, citing Petrovic ¶¶ 19, 154–56. Appellants further argue that Hartenburg's compacting pressure is applied to a sublayer, not a top layer as recited in claim 1, and a person of ordinary skill in the art would not look to Hartenburg to obtain guidance to harden a top layer mixture. App. Br. 6.

Appellants' arguments are not persuasive of reversible error. A preponderance of the evidence supports the Examiner's determination that a person of ordinary skill would have been led by Petrovic's teaching of a 10–20 wt% polyurethane to the claimed method using 1–9 wt% polyurethane, particularly because Appellants have not pointed to any evidence that the claimed range is critical. *See In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) (where the difference between the claimed invention and the prior art is some range, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range). Further, Appellants' argument that Petrovic discourages use of less than 15 wt% polyurethane disregards the Examiner's finding that Petrovic expressly states that "[s]ufficient strength may be found in many instances where the resin content ranges from 10% to 15% of the polymer concrete composition by weight" and teaches an embodiment having resin content ranging from 10–15 wt% of the concrete composition. Ans. 9–10, citing Petrovic ¶¶ 19, 21–22. With regard to Hartenburg,

[6] Declaration of Nils Mohmeyer, dated March 20, 2014.

Appellants provide no evidence that Hartenburg's compacting pressure would not be applicable to Petrovic's process. Accordingly, we affirm the rejection of claims 1, 4, 5, 7, 9–13, 15–18, 21, and 22 as unpatentable under 35 U.S.C. § 103(a) for the reasons given above and stated by the Examiner.

Rejection 2

The Examiner finds that Leitner teaches a process comprising applying a compact polyurethane mixture onto the mineral surface of an embankment, wherein the mineral surface includes stones, rocks, gravel, and crushed granite. Ans. 5, citing Leitner ¶¶ 9, 12–13, 33, 38, 39. The Examiner further finds that Leitner's Embodiment 1 describes a top layer mixture comprising granite and a polyurethane mixture, which the Examiner calculates to contain 1.1 wt% of polyurethane mixture based on the density of granite and the volume of the mold into which the top layer mixture is poured. Ans. 6, citing Leitner ¶¶ 43–47. The Examiner determines it would have been obvious for a person of ordinary skill in the art to use Hartenburg's compacting pressure in Leitner's process for the same reasons as discussed for Rejection 1, above.

Appellants argue that the Examiner's calculation is erroneous because it assumes complete filling of the mold by the granite gravel, even though a person of ordinary skill would expect significant open space between the rocks. App. Br. 8. Appellants further argue that it would not have been obvious to a person of ordinary skill that Hartenburg's tamping step would have improved Leitner's process, because Hartenburg's gravel is between 2 and 5 mm and significantly smaller than Leitner's gravel, and thus more readily compactable. *Id.* at 9, citing Hartenburg ¶ 44.

Having considered Appellants' arguments and reviewed all record evidence, we are not persuaded of reversible error in the Examiner's determination of obviousness. As the Examiner notes (Ans. 11), even assuming the mold were only half full of crushed granite, the amount of polyurethane would still be well within the claimed range. Appellants do not dispute this calculation but respond that Leitner does not disclose the grain size of the crushed granite or depth and fill content of the mold (Reply Br. 4), even though the Examiner's calculation does account for those variations. Accordingly, Appellants' argument is not persuasive. With regard to the combination of Leitner and Hartenburg, Appellants offer no evidence that Hartenburg's tamping step would be unable to compact Leitner's granite gravel. The Examiner's determination that it would have been within the knowledge of a person of ordinary skill in the art at the time of the invention to apply at least the pressure of Hartenburg's step is reasonable. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) ("A person of ordinary skill is also a person of ordinary creativity, not an automaton").

Accordingly, we affirm the rejection of claims 1, 2, 4, 5, 7–12, and 14–22 as unpatentable under 35 U.S.C. § 103(a) for the reasons given above and stated by the Examiner.

Rejection 3

The Examiner finds that the appealed claims fail to comply with the written description requirement under 35 U.S.C. § 112, first paragraph because the limitation "neither the polyurethane reaction mixture nor the top layer mixture comprise a blowing agent," which Appellants added during prosecution, purportedly does not have support in the Specification. Ans. 9.

Appellants argue that the originally filed Specification supports the limitation, especially in the following statement (Spec. p. 8, ll. 39–40):

> A polyurethane is termed compact polyurethane if it is substantially free from gas inclusions.

Reply Br. 1. Appellants further argue that a person of ordinary skill in the art would have understood that a blowing agent would not be added to a mixture where a compact structure free from gas inclusions is sought. *Id.* at 2.

We are persuaded that the Examiner harmfully erred in finding that the appealed claims fail to comply with the written description requirement. The Examiner has not met the burden of presenting evidence or reasons why the Specification would not have conveyed to a person of ordinary skill that the inventors had possession of a mixture which did not comprise a blowing agent. *See In re Marzocchi*, 439 F.2d 220, 224 (CCPA 1971). It has been established that the claimed subject matter need not be described *in haec verba* in the specification in order for the specification to satisfy the description requirement. *In re Smith*, 481 F.2d 910, 914 (CCPA 1973).

The Examiner has not responded to Appellants' citation of page 8 of the Specification, or directed us to any evidence that a person of ordinary skill in the art would have understood that the inventors did not have possession of a mixture which did not comprise a blowing agent.

Accordingly, we reverse the § 112 rejection.

CONCLUSION

We affirm the rejections of claims 1, 2, 4, 5, and 7–22 as unpatentable under 35 U.S.C. § 103(a).

We reverse the rejection of claims 1, 2, 4, 5, and 7–22 under

35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED